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# Water Policy and Farmland Protection

## A New Approach to Saving California's Best Agricultural Lands

### A Discussion Paper for American Farmland Trust

By  
Marc Reisner

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### Foreword

California's Central Valley is a large Mediterranean growing region without equal in the United States. Producing over \$14 billion of farm products annually (2/3 of the state's farm production), the Central Valley is increasingly threatened by rapid population gain and the resulting growth of communities. These threats, highlighted in our 1995 report, *Alternatives for Future Urban Growth in California's Central Valley: The Bottom Line for Agriculture and Taxpayers*, draw attention to the need to protect the land upon which this production is based.

However, this world-class agricultural region is dependent on more than the deep, fertile, well-drained soils for which it is known. This "food factory" also depends upon the availability of a favorable climate and irrigation for growing more than 250 different crops. While climate is a factor beyond our immediate control, the availability of water is largely in human hands through the vast network of dams, pumps and canals that has been built during the past century, and the policy decisions that influence the competition for this scarce resource.

Increasingly, concerns have been expressed by farmers and others about the availability and affordability of irrigation water to sustain agricultural production. Because of an expanding urban population and a greater demand for water to enhance environmental values, competition for water has created a cloud of uncertainty over many Valley farmers. The revisions in federal water law embodied in the Central Valley Project Improvement Act of 1992 is but the latest example of the enormous changes that have been taking place.

Although the mission of American Farmland Trust is maintaining a productive agricultural land base, we recognize that an available and affordable irrigation water supply is every bit as necessary to sustain agricultural production. We believe the public is well-served by

maintaining agriculture in the Valley -- not only because of its economic contribution, but also because its environmental stewardship is improving -- and that farmers need additional incentives to agree to make a long-term commitment of their land to agricultural use in the face of relentless urban sprawl.

This recognition led us to begin exploring ways to ensure reliable, sufficient and affordable surface irrigation water for farmland committed to long-term agricultural production in areas undergoing rapid development pressure.

With the support of the U.S. Bureau of Reclamation, AFT enlisted the services of Marc Reisner, one of California's most experienced water policy observers and author of the book *Cadillac Desert*, to explore the possibilities. We gave him free rein and do not necessarily agree with every point or recommendation he makes. But he has certainly met our expectations for an insightful, thought-provoking piece of research. It is our hope that it will stimulate discussion about how we can ensure that irrigation water remains available for those farmers who make a commitment to farming and, thereby, contribute to the well-being of all Californians and, indeed, everyone who depends on its agricultural bounty.

The choice, as we see it, is between two futures for the Central Valley: an agricultural future that maintains the ingredients for farming and attendant environmental benefits that farmland supports, or an endless sprawl of suburban development that provides no value for the environment and no future for farming.

ERIK VINK

EDWARD THOMPSON, JR.

California Field Director Senior Vice President for Public Policy

### **Executive Summary**

California farmland is an irreplaceable, global resource providing wildlife habitat as well as unparalleled food production capacity. New farmland protection incentives are needed to avert massive losses of California farmland. A reliable, affordable irrigation water supply is critical to the protection of California farmland. Without it, farmland conversion will likely be hastened; assuring it could be a powerful new incentive for farmland protection, if water security and land protection are linked.

Farmland protection may be the single most important issue left out of the Central Valley Project Improvement Act (CVPIA) implementation process. CVPIA includes a moral, if not legal obligation to replace the 800,000 acre-feet of water dedicated to environmental purposes. There is a significant possibility of developing this "new" CVP water without constructing new dams through aquifer recharge and water banking, conjunctive use, temporarily or permanently fallowing problematic land, and purchases or leases of water.

The most critical agricultural water insecurity appears to be on the west side of the San Joaquin Valley, while the most productive and threatened farmland is along the Highway 99 corridor on the east side. The biggest obstacle to providing lower cost agricultural water as an incentive for farmland protection is that someone else must pay. Enhancing reliability of water supply may be an easier alternative. Lower cost, more reliable agricultural water could be justified by 20 to 40 year grower agreements to keep land in agricultural production. An approach for providing lower cost, more reliable water from new CVP sources in exchange for long-term farmland protection agreements is proposed as a starting point for wider discussion of this issue.

### **Introduction**

The metamorphosis of some of the world's finest farmland into suburban sprawl is one of the longest-running and most insidious crises confronting the state of California. After the rate of conversion slowed somewhat in the 1970's, an enormous population influx in the

1980's and early 1990's caused some of the worst land losses since the 1950's and 1960's, when the Los Angeles Basin's seamless orchards became a memory. By the year 2040, if population projections hold true and development patterns do not change, a million more acres of prime California farmland could go out of production. The sprawl projected to sweep over it will pose major headaches for local and state governments and could create almost insoluble environmental problems.

Many fast-growing metropolitan regions in the United States began as villages set amid fertile farm fields, so we are not the only state where cropland is being gobbled by development. But in California, as everyone knows, things tend to go faster than anywhere else. It is hard for newcomers to the state to conceive of the changes of the past few decades, let alone the past century. Los Angeles County led the *nation* in farm income until the Second World War, but a generation later was virtually bereft of farms; never in history has so much first-class agricultural land disappeared so fast. When World War II broke out, San Jose was a small urban island (population 40,000) in a sea of famously productive Santa Clara Valley farmland. Today, the cherry, plum, and apricot orchards have been transformed into Silicon Valley with a regional population of 2 million. The last defiant farms are green specks on an interminable plain of sprawl.

More than anything, it is the relentlessness of California's growth that sets the state apart. Although rates of growth have fluctuated substantially from decade to decade, there have been only two years since the Gold Rush when California's population did not increase overall. During the severe recession of the late 1980's and early 1990's -- when the state's unemployment rate was the highest in the nation and out-migration was unprecedented -- the net population increase was still several hundred thousand people a year. In the past two decades, the Bay Area alone has assimilated the equivalent of Oregon's current population! A half century from now, the Interstate 80/Highway 101 corridor from Sacramento all the way through the Bay Area and south to Monterey County, where some of the world's most valuable farmland is concentrated, may become a sanitary version of the New York-to-Washington corridor: two hundred nearly continuous miles of urbanization. In the few remaining sparsely populated areas of coastal southern California, where most of the state's avocados and its finest Valencia oranges are grown, development pressure -- which had abated considerably as the region's aerospace industry retrenched -- is booming again. Encroaching development also threatens northern California's Sonoma Valley and Santa Rosa Plain, legendary wine-producing regions. But perhaps the most troubling sprawl is filling in rural space along the Highway 99 corridor, from Yuba City south to Visalia, along the east side of the San Joaquin Valley. This is some of the best and most versatile farmland anywhere and the heart of California's \$24 billion agricultural economy.

Without new land-protection strategies, what happened in the Los Angeles Basin and in what became Silicon Valley will be repeated again and again. The Williamson Act, the preeminent statute protecting California farmland, has been a demonstrable success in helping farmers resist development pressure by offering tax relief in return for renewable, ten-year farmland conversion restrictions. But critics of the Williamson Act argue that the incentives are easily overwhelmed, that the restrictions are too short-term, and that eligibility criteria are too blind: poorer-quality grazing land qualifies just as easily as unique valley soils where high-value specialty crops can be raised. The Williamson Act is a landmark statute, and one Californians can be proud of, but it has not prevented the development juggernaut from overrunning a great deal of first-class cropland. Other farmland-protection programs, such as the Marin Agricultural Land Trust, Sonoma County Agricultural Preservation and Open Space District, Ventura County Greenbelt Agreement and the Solano Irrigation District/Fairfield Agreement, have been quite effective, but within very limited spheres of influence.

In a market-oriented democracy such as ours, protecting irreplaceable natural resources for posterity is a perennial dilemma. This seems especially so in the case of land. We sanctify private property rights more than other democracies, making it difficult for society to

preserve "public trust" assets for future generations. Also, like other relatively depopulated large nations -- Brazil, Russia, Argentina -- the U.S. often seems possessed of a "frontier mentality," in contrast to the island mentality of crowded European democracies, where population pressure has posed a threat to resources (especially farmland and food production) for a long time. In Europe, zoning measures that contain urban development are generally stronger than here; subsidy programs aimed at ensuring sustained and diverse farm production are also more generous (which prompted Charles DeGaulle to ask how you govern a nation that produces 350 kinds of cheese).

Although a strong emphasis on individual liberties is one of this country's most durable achievements, society-at-large has its own set of rights and means of enforcing them; the power of eminent domain is a good example. Through all the long history of American jurisprudence, the courts have swung back and forth on these philosophical issues -- now favoring the individual, then favoring broader society. The most productive 15 percent of the nation's farm acreage may be as important an asset as the National Parks, but an edict protecting such land in perpetuity would appear to run against the grain of private property rights and, even if adopted through legislation, might be struck down by the courts. As such, incentive programs have a built-in advantage over land-protection policies based on restrictiveness: they are easier to rationalize and probably much more defensible in the event of a legal challenge. But in California, where various incentive programs already exist, development pressure is so ubiquitous and overwhelming that inventive (and systemic) new protection strategies need to be devised.

### **California Farmland: An Irreplaceable Resource**

In any state, the farmland protection-versus-development dilemma symbolizes the tension between individual property rights and the long-term interests of society-at-large. What gives it special significance in California is the fact that much of the agricultural land being lost here is truly irreplaceable. Even the finest Iowa cornfield has its counterpart in a number of other states, and America grows so much corn that it is perennially in surplus. But California, one of only a few regions on earth with a true Mediterranean climate -- mild wet winters and warm dry summers -- produces more than 250 different crops. In all of North America, many are commercially grown here alone. California raises the United States' entire artichoke crop; it grows almost all of the nation's Haas avocados, kiwis, almonds, and dates. We produce most of America's grapes, Navel oranges, asparagus, tomatoes, lemons, carrots, lettuce, walnuts, celery, and pistachios -- just to begin the list.

Some of these crops are uniquely suited to microclimates in regions where development pressure is especially severe. Most California artichokes come from a thirty-mile-long sliver of coastland shared by rapidly-growing Half Moon Bay, Santa Cruz, Monterey, and Salinas. Valencia oranges, another high-value, labor-intensive crop, were evicted from the Los Angeles Basin after World War II and found two last strongholds where they are now endangered again: the southern San Joaquin Valley between Fresno and Bakersfield, and the last partially-developed corridors of interior coastland near Los Angeles and San Diego. Efforts to grow them anywhere else have been bedeviled by chronic frost danger. A large percentage of California's table grapes are grown in Fresno County, whose population increased by 50 percent between 1980 and 1997. Brentwood, in Contra Costa County, surrounded by some of the most productive truck farms in California -- many are U-pick operations that offer urbanites a rare opportunity to experience farming firsthand -- recently assumed the dubious distinction of having the fastest rate of growth of any city in the state.

California's farms represent more than a \$24 billion a year industry producing a quarter of the country's table food. In a state headed for a population of 50 million and more, farms, though they aren't parks or wilderness, take on special importance as open space, as relief from sprawl. They also support wildlife. Sacramento Valley rice fields may sustain more waterfowl than the region's four National Wildlife Refuges, with a quarter of a billion pounds of waste grain left after harvest. Without the rice crop, the birds would have little to

eat after cleaning out the refuges (which they usually do within a few weeks). The rice farmers' increasing reliance on post-harvest flooding to decompose leftover straw provides both habitat and more food: flooded, winter-fallowed rice fields are *de facto* wetlands that can be regarded as second-class wildlife refuges. Great numbers of songbirds subsist on California's orchard crops and on insects that flourish in many fields. Small rodents feast on grain and find shelter amid the field stubble -- one reason why the Central Valley, despite being intensively farmed, supports one of richest raptor concentrations in North America. California agriculture is certainly not without its environmental problems, but nearly any bird, mammal, amphibian, or insect is apt to prefer a farmed field to a treeless new development or shopping mall.

The catastrophic Central Valley floods of early 1997 have buttressed another strong argument for farmland preservation programs: they can greatly reduce economic losses to floods. A drowned riparian-zone farm field in mid-winter, when most historic flood events in California have occurred, may represent an economic loss of a few hundred thousand dollars. A new subdivision on the same ex-farm could represent a monetary loss of many millions of dollars. Although individual home and business owners pay the greatest price in economic and human terms, state and federal taxpayers contribute vast sums of money through relief efforts and programs such as FEMA, and everyone is affected when insurance rates rise. Also, levees that protect thousands of homes must be more diligently and expensively maintained than levees that protect only farmland, a few structures, and machinery. If, as some observers predict, upriver reservoir operations are changed to provide more emergency flood-storage space, that would represent another development-related cost: a reduction in water-storage capacity for urban and farm users alike.

## Water and Farmland Protection

The brief and spectacular abundance of runoff during the January floods demonstrated anew the unpredictability of California's Mediterranean climate. We are blessed -- or cursed, it sometimes seems -- either with too little water or too much. But the unpredictability of this vital resource also creates an intriguing opportunity to base new land-protection strategies on water's cost and availability.

Because California's best farmland is in semi- or starkly arid zones where precipitation is highly seasonal -- and often nil during the growing season -- nearly all food crop production depends on irrigation. Thus, the first necessity of any farmer, besides arable land, is a relatively reliable and affordable water supply. During the heyday of water project construction, this vital resource seemed endlessly renewable and was usually cheap. Whenever a water crisis loomed, the Federal government, the State, or water districts themselves would step in to relieve it by constructing new dams and aqueducts.

During the past two decades, however, water development in California has come nearly to a halt. As cumulative project impacts on scenic values, river recreation, fisheries, and wildlife have become much better recognized, the public's attitude toward new dams has soured. Cost has also become a major consideration in an age of chronic Federal deficits, bare-bones State budgets, and public resistance to new bond measures.

Meanwhile, the Central Valley Project Improvement Act of 1992 ("CVPIA") has re-dedicated about 10 percent of the average yield of this water-supply project -- the largest in the western hemisphere -- to environmental needs. (As explained below, not all CVP water users are required by CVPIA to dedicate 10 percent of their usual allocation to fish and wildlife. Some give up no water, while others give up considerably more than 10 percent in many years.) More conservative, post-drought water management policies adopted by the Bureau of Reclamation and the Department of Water Resources may further constrict water supplies in normal precipitation years, although more water could be available in times of drought. Flood-management policies now being discussed in the wake

of the January 1997 disaster could have a similar result. Endangered Species Act recovery plans are still another reason why many farmers enjoy far less "water security" than they did just a few years ago.

From the standpoint of farmland protection, the prospect of chronic water scarcity is a double-edged sword. On the one hand, potential crop losses and difficulty in securing production loans may cause farmers with chronic water worries to cash out by selling their land to developers. Or they may sell water rights to urban districts, which is apt to have the same effect; developers are likely to end up with the land, if it is near a growing city, and bring in water somehow.

By the same token, however, a relatively certain and affordable water supply could become a powerful incentive for farmland protection. If, for example, in exchange for agreeing not to develop his land for many years, a farmer were guaranteed 75 percent of his normal-year water supply even in the worst of droughts, that might be incentive enough -- especially if he feels strong ties to the land -- for him to forswear the financial advantages of selling to a developer. A combination of lower-cost water and a somewhat more certain supply might accomplish the same end.

Obviously, any incentive policy based on water delivery and cost will be controversial and politically charged. (Not unlike the Williamson Act when it was first proposed.) Farmers who decline to "buy into" incentive programs may argue that they are forced to subsidize those who do. Environmentalists may object to "more special treatment" for farmers who, many believe, have received enough. Urban districts that openly or secretly covet agricultural water rights might object to any program that "locks up" blocs of water in agriculture. Some farmers will no doubt argue that they should enjoy full water deliveries with no strings attached, as they did for so many years.

A Solomon might find some merit in all these arguments. But the fundamental reality -- which farmers, especially, must recognize and accept -- is that California, while a semi-arid state, is a highly fluid one. All that is constant is change. The public has mandated (through CVPIA) a reduction in federal farm water deliveries. Since the taxpaying public has borne most of the cost of federal irrigation, it has impressive moral authority. This can only mean that greater water security for growers will come at a price. But the price may be acceptable, economically and politically, if the result is selective land protection that benefits farmers and urbanites alike, and does not deflect environmental restoration goals. What everyone must recognize is the likely cost of failure: the loss of a very significant portion of the most productive and versatile farmland in the nation. Some loss is inevitable; the real issue is how one minimizes it.

The purpose of this discussion paper is not to devise a water-for-land-protection strategy that will please everyone. Like welfare or Medicare reform, any such policy will have detractors on all sides: those who think it goes too far, those who think it doesn't go far enough. Although a model program is offered for comment and improvement in the final section, the main purpose of this paper is to stimulate discussion over a dilemma that must be resolved if much of California agriculture is to remain economically viable while improving its environmental performance -- and not be swallowed up by sprawl.

### **Institutional Context: The Bureau of Reclamation**

In California, irrigation water is sold and distributed by a variety of entities under a complex and varied set of rules. The largest single bloc of irrigation water, by far, is controlled by the U. S. Bureau of Reclamation. The Bureau also has a social agenda, under the Reclamation Act and various amendments, that encompasses farmland protection -- at least implicitly. Besides this, the Bureau is the only water provider in California that has an apparent mandate to develop a large amount of new water -- water to replace the 800,000 acre-feet rededicated to environmental uses under CVPIA. This new supply has perhaps the greatest

potential to serve as "incentive" water encouraging farmland protection. For all these reasons, the bloc of federally-distributed water delivered through the Central Valley Project may best lend itself to a farmland protection incentive strategy.

## The Emergence of "Cal Fed"

Meanwhile, however, the most significant recent development in California water, other than CVPIA, has been the creation of the CalFed program to promote both ecological restoration and reliability in California's water supply. CalFed is commonly misperceived as a "Delta" program, but in reality it is much more than that. Besides working toward a Delta "fix," CalFed proposes (though it does not have a mandate) to develop upwards of 5 million acre-feet of water in the Sacramento and San Joaquin Valleys and foothills through relatively innovative strategies such as offstream surface storage, conjunctive use, and groundwater banking. The operative principle is that any new water supply will be divided equally between urban, agricultural, and environmental uses. By alleviating scarcity, CalFed, if it succeeds, will have reduced pressure to redistribute farm water to exploding urban populations. On the other hand, it will have created a new water supply for millions of new Californians; if current patterns of sprawl do not change, CalFed goals pose an indirect threat to tens of thousands of acres of prime farmland.

If, as some observers predict, CalFed ultimately metamorphoses into a superagency under which some functions and responsibilities of the Bureau of Reclamation (and other agencies as well) are subsumed, then it might make sense for any farmland protection initiative to be managed and even financed under this new authority. The rationale is straightforward: because CalFed, by vastly augmenting the state's water supply, will make California "safe" for explosive new urban growth, this same growth (i.e., urban water users) has what amounts to a moral obligation to support farmland protection. Unfortunately, it is too early to tell exactly what kind of agency CalFed will evolve into, let alone what it will ultimately recommend or do. Therefore, though any attempt to build an incentive strategy around CalFed may be premature, those involved most intimately in the CalFed process should begin looking for opportunities to develop such a strategy. For the advantages of having CalFed, rather than the Bureau (as proposed below) manage and finance any such program could be great in terms of political and financial feasibility.

Even so, a cautionary note may be in order: no matter what water incentive stratagem is devised and successfully implemented through the Bureau of Reclamation or CalFed, further incentives at the federal, state, county, or water-district level may be needed for any protection strategy to be truly effective. That will be especially true where greatly inflated land values make development pressure more difficult for farmers to resist.

This much -- and perhaps only this much -- seems beyond argument:

1. Without stronger protection incentives, California is poised to lose a vast amount of high-value farmland during the next several decades. From a state and even from a national perspective, much of it may be truly irreplaceable. For example, to suggest that California's orange production can be shifted to Florida is to ignore the fact that Florida is also experiencing serious agricultural land loss, especially in the southern part of the state where its orange industry has been pushed by frost.
2. The potential of water security and attractive water pricing as farmland-protection incentives seems never to have been tested.
3. Most Californians, rural and urban alike, look with disfavor on unchecked sprawl and the inexorable disappearance of prime farmland. Even so, any effective protection strategy is certain to be controversial, whether the incentive mechanism is water or something else. One could almost say *especially* if it is water.

Although a consensus-based protection strategy may be difficult to devise, no other approach can work. On water issues (and perhaps on land-related issues as well), political power is more broadly and equally distributed than ever before, which leaves us with two alternatives: paralysis or consensus.

## **The CVPIA and Agricultural Water Supply**

In California, any farmland protection incentive program based on federal water supply must be viewed in the context of the Central Valley Project Improvement Act of 1992 (Title 34 of Public Law 102-575). CVPIA is undoubtedly the most far-reaching set of amendments to federal reclamation law since the original Reclamation Act was passed in 1902. It mandates sweeping changes in water allocation and delivery that affect dozens of contracting water districts and many thousands of farmers. (Central Valley Project water deliveries represent about 20 percent of the state's developed supply. More than 90 percent of the CVP's non-environmental yield goes to agriculture.) Some of the new law's most significant features and rules are summarized below:

- The maximum duration of new water contracts is reduced from 40 to 25 years. Because most of the original contracts were signed in the 1950's and 1960's, many are about to expire or already have. Pending completion of an extensive EIS and other studies, districts whose contracts have recently come to term are generally operating under two-year interim contracts.
- Up to 800,000 acre-feet of the CVP yield, or roughly 10 percent, is dedicated to achieving fish and wildlife and habitat restoration goals of CVPIA. A Restoration Fund financed by surcharges imposed on water and power users will help implement these goals by funding ecological restoration work, fish screens and ladders, and so on. Additionally, the CVPIA directs that supplemental water supplies be provided through long-term contractual agreements to Central Valley refuges and wildlife habitat areas.
- To carry out the foregoing purposes, the Secretary of the Interior is authorized and directed to undertake a range of implementation steps, including modified CVP operations, water banking, conservation programs, conjunctive use programs, temporary and permanent land fallowing, and purchases or leases of water.
- Although certain guidelines and constraints apply, CVP water may now be sold or leased by any contractor to any buyer in the state of California, even if the buyer is not a CVP contractor within the designated project service area.

The Bureau of Reclamation is directed to study and recommend least-cost strategies for making up the 800,000 acre-feet of project water dedicated in normal years to fish and wildlife restoration. Whether the Federal government must *develop* this new supply is subject to interpretation; most careful readers of CVPIA say no.

## **Water Insecurity: Which Farmers Are Most At Risk?**

Although the exact manner in which these new rules will be implemented is far from clear, the impact of CVPIA, as mentioned earlier, has already fallen unequally on different classes of water users. The San Joaquin Exchange Contractors, several districts with pre-project San Joaquin River rights to 840,000 acre-feet, are exempted from most new obligations, including the water reservation for fish and wildlife and Restoration Fund surcharges. Also, their entitlement can be reduced by no more than 25 percent during droughts. (The Exchangers traded their original water rights to the project's Friant Division in return for an assured supply from northern California reservoirs through the Delta.) Sacramento River Water Rights Contractors, a number of northern California districts with pre-project entitlements totaling 2.2 million acre-feet, are similarly treated. Friant Division contractors,



who have rights to 800,000 acre-feet of Class I (firm) San Joaquin River water and 1.4 million acre-feet of Class II (interruptible) water, are excused from contributing to the 800,000 acre-foot reservation for fish and wildlife, but must pay a higher surcharge into the Restoration Fund.

Because these exemptions apply to user groups that consume such a large proportion of the CVP yield, the major burden of shortage will be borne by the CVP's Agricultural Service Contractors, a bloc of 24 south-of-Delta districts with project entitlements totaling 1.8 million acre-feet. The Agricultural Service Contractors range in size from the 800-acre Laguna Irrigation District to the 604,500-acre Westlands Water District, and lie mainly on the western side of the San Joaquin Valley; they represent the largest membership bloc within the San Luis and Delta Mendota Water Authority (hereafter, "the Authority").

Since CVPIA was enacted in 1992, these districts have received full entitlements in only one year, despite normal to above-normal runoff. During future droughts, when the neighboring Exchange Contractors can be cut by only 25 percent, the Ag Service Contractors can theoretically receive no water at all. Unlike the Friant Division contractors, they are also subject to constraints on Delta pumping related to Endangered Species Act recovery plans and water quality needs, and must contribute to the 800,000 acre-foot fish and wildlife reservation and to firmed-up refuge water supply. Meanwhile, new water rates in interim contracts have gone up dramatically -- even more so when one adds contributions to the Restoration Fund. As such, the CVP Agricultural Service Contractors now have a less reliable water supply than any other class of project user, despite paying much more for it. According to Dan Nelson, the Authority's general manager, applying all the new CVPIA rules and regulations to the past sixty years of runoff records would have left these contractors with about 60 to 65 percent of their entitlements in normal years and even less during droughts. Prior to CVPIA, they received full entitlements in all years except 1977, 1990, and 1991, which were among the driest in California history.

Even in years when they receive full CVP entitlements, some Ag Service Contractor districts have per-acre allocations insufficient for most agronomic purposes. For example, the Westplains section of the Westlands Water District has an allocation of 1.3 acre-feet per acre per year, which -- no matter how efficiently a grower irrigates -- is too little to meet the water demand of most varieties of commercial crops grown in the region. As a consequence, many west side growers and others must routinely supplement their CVP supply with spot-market purchases, by pumping groundwater or both. According to Marvin Meyers, a prominent west side grower, inconsistent groundwater quality and a generally deep water table can drive the cost of pumping and delivery to nearly \$90 per acre-foot.

All of these factors combined -- reduced deliveries, higher costs, and long-term reliability concerns -- have recently inspired a wholesale shift to higher-value (and, if possible, less water-demanding) crops. According to Meyers, cotton, once overwhelmingly dominant on the west side, has seen its acreage decline by about 25 percent since 1990. Like other growers, Meyers himself has replaced much of his cotton acreage with orchards, in his case, almonds. Almonds have a high water demand, largely because they must be irrigated throughout the growing season in the hot semi-desert regions where they grow extremely well. However, they lend themselves to drip irrigation, which confines water applications to the root zones of the trees; this substantially reduces per-acre demand. All of Meyers' orchard land is drip-irrigated. Once the exception on the West Side, drip is becoming the rule where permanent crops are grown.

From a grower's perspective, shifts to higher-value crops and super-efficient irrigation are a natural and necessary response to a much changed water supply situation. But they may not be removing much of the risk that water uncertainty is causing. It costs hundreds or (more often) thousands of dollars per acre to replace field crops with orchards, which usually take at least four years to bear fruit. Installing a drip system may cost several thousand dollars an acre more. In other words, a grower who farms 500 acres, and converts a fifth of his acreage

to orchards and drip systems, must pay several hundred thousand dollars to effect the crop conversion -- and then loses income for several years while his trees mature. Although a few low-interest loan programs exist to help ease the financial burden, most growers who have made major crop and irrigation shifts now have much more invested in their land and carry onerous new debt. This makes them even more vulnerable to high water costs and especially reduced deliveries. A tomato field can be fallowed at a tolerable financial loss; an orchard cannot. Even though permanent crops as a practical matter have first priority on CVP water during droughts, it is far from certain that West Side growers who have gone to permanent crops will have sufficient water at all times to keep them from perishing. This precarious situation is compounded by the fact that, without demonstrating that he has a sufficient emergency water supply, it can be hard for a farmer to secure bank loans for his next year's crop.

### **An East-West Conundrum?**

One issue that complicates the task of providing greater water security as an incentive for protecting California's best farmland is that, in the San Joaquin Valley, development pressure is far greater on the east side of the valley, while the most insecure water situation is on the west side. The development boom around cities like Stockton, Fresno, and Visalia has become so strong and sustained that land values are inflated at some distance from what is regarded as the metropolitan region. This trend is likely to continue, or so it was assumed in AFT's 1995 report, *Alternatives for Future Urban Growth in California's Central Valley: The Bottom Line for Agriculture and Taxpayers*. Yet, while rising water costs are of real concern within the Friant Division Service Area -- roughly paralleling the Highway 99 corridor from Madera south to Bakersfield -- reliability of delivery is much less of a concern there than in most west side irrigation districts. Friant growers are not yet directly affected by Delta constraints and are excused from contributing to the 800,000 acre-foot reservation for fish and wildlife. Also, groundwater on the east side is typically more reliable and of higher quality. Because of chronic groundwater overdraft, active recharge programs and exchange agreements designed to reduce the overdraft are in effect, and have been quite successful. Natural recharge is also better on the east side because the foothills of the Sierra Nevada get more precipitation than the Coast Range.

On the west side, by contrast, cost and especially reliability are of great concern, for reasons mentioned earlier. But development pressure is far less severe except in the Tracy area and, in a limited sense, around Patterson and Los Banos, which are mere villages compared with Fresno and Visalia.

This poses a dilemma: should landowners whose property is unlikely to be developed for decades -- if at all -- be just as eligible for land-protection incentives as those whose land is directly in development's path? Most land protection advocates who were interviewed for this discussion paper said that, in an ideal world, incentive programs would target three types of land first: (a) good-quality farmland threatened by sprawl; (b) the very best (Class One and Two) farmland anywhere in the state; and (c) any land in small ownership raising high-value crops. But such targeting criteria might exclude, or relegate to a low priority status, first-quality west-side cropland with major reliability problems, simply because urbanization still seems to be decades away. By the same token, hundreds of small east-side family farms producing one of the state's most valuable and labor-intensive "signature" crops, oranges, might also fail the three-criteria test, because oranges, like vineyards, can do exceptionally well on hilly, Class 3 and 4 land.

This author's conclusion, therefore, is that any water-based land protection incentive program cannot be too exclusionary, at least on paper. It is likely, however, that relaxed eligibility standards will be strongly criticized in some quarters, for reasons that are perfectly understandable. Environmentalists in particular, who believe that fisheries are still being shortchanged, may object to reliability incentives offered to growers relatively far from urban areas, especially if they are raising low-value or water-consumptive crops. Thus,

to prevent exploitation of the program, and to garner crucial support from potential skeptics, some criteria must apply. A farmer sixty miles from the nearest city or town of any size may never be tempted by development offers. Therefore, eligible land must be close enough to an urban center so that development within the next two or three decades is a distinct possibility. Marginal or problem acreage must not be eligible; this provision would exclude the "selenium acreage" already targeted in land retirement programs authorized under CVPIA. Water consumption should also limit eligibility. Irrigated pasture, for example, uses much more water per acre than grapes. Its high water demand and low value are, in the eyes of many, synonymous with waste, inefficiency and, above all, subsidy, even though irrigated pastureland in districts like Oakdale, Modesto, and Turlock receives little or no federal subsidy. These districts simply had the political and financial capital to build great reservoirs when costs were low. Further subsidizing water-intensive, low-value crops grown on the CVP supply would surely jeopardize political support within the environmental community and elsewhere. And in this observer's view, support from environmentalists is almost a prerequisite if such a program is to become a reality. As a rule of thumb, proscribing applied water use in excess of three acre-feet per total acre per year is a rule that many might find sensible. (Alfalfa growers, undoubtedly, would not. They would also argue, correctly in many cases, that irrigated alfalfa supports more wildlife, from bees to nesting waterfowl to deer, than most California crops. Nonetheless, political feasibility must remain paramount.)

Whatever rules apply, the eligibility issue is sure to provoke strong feelings and much debate. If environmentalists and others balk at the notion that farmland facing no imminent development threat deserves special favoritism, agricultural interests may hold out for wide-open eligibility that has no chance of political success. Perhaps the best way to handle this dilemma is to make eligibility quite broad but susceptible to prioritization. In other words, Class 1 or 2 lands within a few miles of outlying suburbs would automatically be first in line for available incentive packages. If there are no takers, or too few, the next class of eligibility (less perfect land at a greater remove) would be moved into place, and so on. To some degree, then, the entity administering the incentive program must enjoy discretionary authority.

### **Will a Politically Feasible Strategy Work in Practice?**

The central challenge of any CVP-water-based incentive strategy is how to sequester and pay for a lower-cost and/or more reliable water supply. As more and more CVP water and power supply contracts are renegotiated at inevitably higher cost, the project revenue stream should increase markedly in future years. An important opportunity may therefore exist to earmark a portion of the enhanced revenue stream for farmland protection incentives. Obviously, however, there are competing demands for these funds. CVP capital-cost repayments are far behind schedule; in recent years, revenues from water and power sales have barely covered operation and maintenance costs. Also, as more funds become available, water-supply augmentation programs may be a higher priority, as far as many contractors are concerned, than incentive programs designed to protect land from development.

Another problem with capturing revenues from water and power sales is the possibility that farmers who have no inclination to sign agreements may object. On its face, such a posture would seem unfair: the benefits of incentive programs would in many cases not measure up to the potential profit from sale of agricultural land. However, for reasons of geographic location, many -- perhaps most -- CVP water users can anticipate no such windfall any time soon. Anyone unalterably opposed to incentive programs *and* far from the front line of sprawl may feel like the odd man out.

Whether urban CVP customers would object to incentives, and to which kind, is even more a matter of conjecture. Urban users represent a relatively small fraction of project water demand, but one that will inevitably grow as farmland is suburbanized and more CVP water

transfers occur. The largest urban CVP contractor is the Santa Clara Valley Water District, which represents a politically important constituency of more than a million customers. On the one hand, many residents of the Santa Clara Valley might wish to see farmland preserved as open space. On the other hand, they might object to the real or perceived consequences of a land protection program: less water for them during droughts, less for potential environmental needs, higher water costs, etc.

One possible way around this dilemma is to surcharge only the last fraction of a district's CVP water payments to finance land protection incentives *within that district*. A corollary rule could waive or reduce the surcharge when district-wide water used has declined by X percent. The conserved water could then be rewarded, in lieu of a cost-abatement subsidy, to growers within the district who sign agreements.

Why would a water district agree to such a set of rules? If it is a rapidly urbanizing district, such as Santa Clara, they might be viewed as an inventive and politically feasible means of checking sprawl. If it is a predominantly agricultural district, such a stratagem might be seen as a means of avoiding, or at least limiting, the inevitable problems of urbanization. Homeowners in new subdivisions, for example, usually object to chemical spraying or even plowing on neighboring agricultural land. Urbanization also reduces the number of remaining farmers in the district; this can pose problems if local mills and packing plants are sized for a certain level of production. Thus, a farm water district might conclude that slowing development, or simply redirecting it away from farmlands toward foothills, is in its own best interest.

No matter how one chooses to finance water cost abatement incentives, it is likely to be a zero-sum equation: if someone's water costs are reduced, then someone else's must rise. Earmarking CVP power revenues for such a program seems unrealistic, especially with deregulation about to shake out the electric utility industry. Although U.S. taxpayers have spent billions of dollars over the years subsidizing the cost of Federal water and power, they have done so mainly by forgiving interest on the Federal investment -- an essentially invisible subsidy. One cannot say with confidence that Congress would authorize a highly visible fund created from general tax revenues to finance land-protection programs limited only to California. Therefore, if water-cost incentives are a part of such a program, they probably must be paid for, in whatever way, by other CVP customers. This could pose a serious political obstacle.

### **Greater Water Reliability: The Easier Path?**

Using enhanced *reliability* as an incentive may prove less complex and politically charged than defraying water costs. This would only be the case if the Bureau of Reclamation chooses to augment the CVP yield; a static water supply is another zero-sum equation. For a number of reasons, however, it seems realistic to expect the CVP yield to increase. First, the Bureau's *Least-Cost CVP Yield Increase Plan* has identified augmentation strategies -- among them selective land retirement, conjunctive-use programs, and underground water banking -- whose environmental impacts are likely to be minimal. Indeed, some such strategies could help with environmental restoration goals. Conjunctive-use programs, for example, could increase streamflows during droughts and reduce fierce competition for scarce water at such times. It seems realistic that some augmentation strategies will at least be demonstrated and perhaps developed on a substantial scale. In recent interviews, top Bureau officials have said that any CVPIA augmentation program may ultimately be subsumed under CalFed's grander-scale "new water" strategy.

Meanwhile, due to the immense amount of damage caused by the recent floods, operations at non-CVP reservoirs are likely to be reconfigured to create more flood storage space. This would force dam operators to spill water earlier and perhaps more routinely, creating opportunities for the Bureau to purchase some of these releases and store them in offstream basins or depleted aquifer space. In short, because of inexorably rising water demand and a

whole new class of politically palatable water augmentation strategies, it's quite likely that the CVP yield will be increased by several hundred thousand acre-feet in the relatively near future.

To whom should this new water flow? One could argue as follows: Environmental needs, though long neglected, are finally being addressed by ambitious (and farmer-financed) habitat restoration programs. Much of the water these restoration programs may also require has now been made available by re-allocating 10 percent of the CVP supply. Rising urban water demand can now be met through sanctioned transfers of CVP water to potential buyers outside the designated service area, such as the Metropolitan Water District of Southern California; before CVPIA, this was flatly illegal. Because environmental needs are being met mainly by redistributing water (as well as profits) from agriculture -- and because rising urban demand will reduce the farm water supply even more -- agricultural customers should be first in line for new water.

One could argue further that any new farm water supply should be restricted to farming -- the original intent of Federal reclamation law. Farmers, in other words, should not be granted a new subsidized or semi-subsidized water supply only to turn around and sell it to the highest -- inevitably urban? -- bidder in a few years. The best way to prevent this is to award "new water" only to growers willing to sign protective agreements that guarantee continued crop production on their land. Such a stipulation would most persuasively apply to any "new" water created through land retirement -- for example, in the selenium-ridden Panoche Fan area. Because farmland went *out* of production to create this new supply, at least some of it should be apportioned to help other farmland remain *in* production.

Some may have problems with this approach. Environmentalists, for example, may argue that water reservations for agriculture could short-change future unmet environmental needs. Urban interests may say that CVPIA represents a long-overdue step toward market economics in the realm of water, and reserving new supplies for farmland is a step backwards. Free-market dogmatists are apt to say this about *any* kind of incentive program designed to achieve broader societal goals.

If for no other reason, however, it may be good political strategy for environmental and urban interests to sanction the granting of any new CVP water supply -- or a large share of it -- to guaranteed agricultural production. Even though CVPIA was opposed by most districts and organizations representing farmers, an important reason why California has begun to rectify historic environmental harm is because agriculture is more sympathetic to environmental goals than it once was. (This seems especially true of the new generation of ag industry leadership.) If agriculture's competitors for water evince a sense of fair play, consensus is more likely to prevail over conflict, and environmental or urban water-supply goals may be much easier to achieve.

To summarize, the best approach to water incentives (outlined more explicitly in the proposal in the last section of this discussion paper) would offer growers a choice between cost-abatement and water-reliability incentives, or a combination of both. Having such a choice may greatly expand the pool of potential participants and strengthen farm community support. More generous incentives would be earned through longer agreement terms. Eligibility would be limited only by per-acre water demand, poor-quality land, and distance from a metropolitan area; it would also be influenced by crop type, with permanent crops receiving first priority (which is already the case during droughts). There would be discretion to favor Class One or Two land, or farmland more immediately threatened by encroaching development, when the "supply" of incentives is short, but farmland meeting less rigorous criteria would still be eligible.

### **The Quid Pro Quo: How Long Should Farmland Be Protected?**

Under the Williamson Act, which is driven exclusively by tax abatement, the "passive

stakeholders" -- California's taxpayers -- give up little; a very small amount of potential tax relief. With so little, virtually invisible sacrifice asked of a broad class of stakeholders, relatively short-term agreements (ten years) are easier to accept. A water-driven incentive program, on the other hand, involves a smaller group of more active and jealous stakeholders -- potential competitors for water -- who may feel they are giving up something truly significant: water that could also go to environmental, urban, or other agricultural needs. Some of these same stakeholders may also be asked to fund any cost-abatement incentive for participating landowners. Therefore, the length of agreement terms becomes an issue of considerably greater importance than is the case with the Williamson Act.

Farmers tend to resist long-term agreements that limit their options in a risky business where land is almost always the principal family asset. When their crop fails, when their children enter college, when a major and expensive emergency strikes, their only way of coping may be to sell some or even all of their land. Many farmers also believe that they have no right to dictate, through long-term deed restrictions, what their children or grandchildren can or can't do with the land they will inherit.

What is unreasonable to them, however, may seem reasonable to someone else. Interviews with a number of people in various camps revealed a fairly wide gulf between agreement terms acceptable to most farmers and terms that other stakeholders regard as fair. Among growers, the consensus, by this author's interpretation, is that 10 to 15 years is preferable, 25 years may be acceptable, and anything longer is problematical or categorically out of bounds. Among non-farmer stakeholders interviewed, the consensus seemed to be that forever is best, fifty years is good enough, and 20 years might be acceptable if incentives aren't excessively generous (a highly subjective concept). Nearly all in this group seemed to regard the 10-year Williamson Act restrictions as too short if the incentives are water reliability or cost-abatement, rather than simple tax relief.

The best one can probably do, therefore, is try to devise terms that are least objectionable, or most palatable, to most. One could argue that the scale should tip somewhat toward the landowners' side, for the simple reason that they own the land that others wish to protect. It would hardly be worth designing and implementing a land protection incentive program if the odds of attracting more than a handful of participants are low. Therefore, the agreement terms written into the proposal that follows run for a minimum of 20 years, with more attractive incentives offered to those willing to sign up their lands for longer terms.

## Conclusion

Agricultural land protection may be the single most significant issue that has for all intents and purposes been left out of the CVPIA implementation process. This is unfortunate, because there are unhappy similarities between the farmland protection issue today and the salmon conservation issue fifty years ago. Prior to World War II, salmon were still so plentiful in California that dams were built without regard for their consequences; even where fish ladders might have been feasible, they sometimes weren't considered, let alone built. No one could imagine then that the most abundant of California's four races of chinook salmon, the Spring-run, would be reduced from hundreds of thousands to fewer than 500 spawning survivors in little more than half a century.

The disappearance of prime California farmland is a phenomenon just as subtle, just as inexorable, and a tragedy we may regret just as much. Most people may not be aware of what has already been lost. What we ought to be saving today is in many cases farmland of good or excellent quality that replaced farmland of superb quality, now forever lost to development. There will never be as many salmon or waterfowl as there were in 1850, but restoration efforts can increase their numbers substantially. Paved-over farmland is gone forever.

Further urbanization of California's farming regions is inevitable. But conversion of the

most productive and versatile farmland is not a foregone conclusion. Only one-tenth of California's land area, about 9 million acres, is irrigated cropland, leaving plenty of room - too much, some might say -- for urban growth. Surely there are ways to protect the best of it, the lands that break up the deadly monotony of sprawl, perhaps even the land like that devoted to rice, whose value is also calculated by its importance as habitat. Providing more reliable, affordable irrigation water to agriculture could be a powerful incentive to protect this irreplaceable land. To that end, the following proposal can perhaps serve as a starting point.

## **A Proposed New Approach to Water Delivery for the Bureau of Reclamation**

The purposes of which are:

To serve and uphold the original purpose of Federal Reclamation policy, which is to encourage family farming in the arid and semi-arid regions of the United States by providing a reliable and affordable irrigation-water supply;

To slow the rate of conversion of California farmland, one of the nation's most valuable and irreplaceable natural resources, into urban development and other uses incompatible with food production;

To promote greenbelts, habitat for wildlife, educational and recreational opportunities for urban Californians, and other benefits of actively farmed land;

To encourage the efficient use of Federally-supplied irrigation water;

To sustain America's export commodities, reduce balance-of-payments deficits, and avert future food scarcity; and

To contain and direct urban sprawl and the environmental, transportation, and other problems it fosters.

This proposal creates a Farmland Protection Partnership open to participation and membership, within prescribed limits, by any agricultural landowner receiving full or supplemental water delivery from the Central Valley Project operated by the U.S. Bureau of Reclamation.

### ***I. Terms of Membership and Participation***

Any landowner with certain actively farmed acreage within a district supplied by the Bureau of Reclamation ("the Bureau") may elect to enroll any portion of this acreage, to a maximum of 960 federally-supplied acres, in the Farmland Protection Partnership ("the Partnership").

Any such lands may already be enrolled in other farmland conservation programs, including the Williamson Act, without infringing on the benefits provided by the terms herein. The restrictions applying to use and conversion of such acreage once enrolled in the Partnership shall also not be diminished by prior enrollment in any other conservation or agreement program featuring lesser restrictions.

Any lands enrolled in the Partnership and eligible for the incentives provided herein may not be converted for development during the applicable agreement term, unless such development is related to immediate owner needs (improved housing) or on-site or off-site agricultural needs primarily benefiting the owner of the property. The minimal period during which these restrictions shall apply is twenty (20) years from the date of enrollment.

At any time after a period of 10 years, the landowner may elect to withdraw enrolled acreage from the Partnership, freeing it from restrictions, provided a penalty is paid. The penalty shall be up to 200 percent of the value of the benefits received during the term of active enrollment. This value shall be computed in the following manner by the Department of the Interior:

- a. If the landowner took advantage of *water-cost incentives*, he shall repay up to 200 percent of the value of his reduced water cost on withdrawn lands during the period of enrollment;
- b. If the landowner took advantage of *water-delivery incentives*, he shall repay up to 200 percent of the value of the water delivery he received on enrolled lands that was above and beyond the delivered entitlement of non-enrolled farmers within his district. The value of incentive water is calculated at the rate paid by non-enrolled landowners, not the discount rate paid by eligible owners with lands enrolled in the Partnership.

This penalty shall be paid in full within one year of withdrawing enrolled lands from the Partnership.

Any landowner may choose to enroll lands for a longer time period than 20 years, and shall thus be eligible for additional incentives, which are outlined below. The same restrictions and penalties for withdrawal shall apply.

After the initial term of enrollment has lapsed, a landowner may re-enroll the same lands, or a lesser portion of property, for a second 20-year term or longer. The same incentives and penalties for withdrawal shall apply.

During any term of enrollment, no water entitlement applying to said agricultural land may be leased or sold or otherwise unattached from its traditional agricultural use except for purposes of fish and wildlife enhancement, unless this bloc of water is a newly created surplus achieved through more efficient irrigation or shifts to less water-intensive crops.

## **II. Incentives**

Recognizing that by enrolling agricultural lands in the Partnership, owners forego opportunities to gain income from land development or transfers of water entitlements, the Bureau of Reclamation shall offer certain incentives or benefits to help compensate for foregone potential income and to better ensure the continuation of productive farming on said lands. These benefits shall be in the form of (a) reduced delivered water costs; and (b) increased water delivery during times when entitlements are being rationed to non-enrolled lands in the district. These two types of incentives are hereafter referred to as Cost and Reliability incentives.

A landowner may elect to choose only cost incentives, only reliability incentives, or a combination of the two. Such decisions are immutable for the term of enrollment and are to be computed on the basis of acreage enrolled. For example, if 400 acres are enrolled and the landowner applies for both types of incentives, 200 acres could receive cost incentives and 200 acres could receive reliability incentives. It could also be 100 and 300, or some other combination. Or enrolling land for a longer period of time, 40 rather than 20 years (as explained below), could qualify all 400 acres for *both* types of incentives.

Cost incentives shall be awarded as follows:

- A landowner who enrolls acreage for 20 years shall be delivered water at a cost 40 percent lower than that paid by non-enrolled landowners in his district.



- A landowner who enrolls land for 30 years shall be delivered water at a cost 50 percent lower than that paid by non-enrolled landowners in his district.
- A land owner who enrolls acreage for 40 years shall be delivered water at a cost 60 percent lower than that paid by non-enrolled landowners in his district.

These reductions in cost shall apply only to the basic delivery charge for water under existing or interim contracts.

Contributions owed to the Restoration Fund and other surcharges applying to non-enrolled lands within the district must be paid in full.

In order to finance this incentive program, the Bureau of Reclamation may apply a surcharge of up to \$1.00 per acre-foot on agricultural water deliveries and up to \$2.00 per acre-foot on municipal and industrial water deliveries. In addition, the Bureau may apply a one-time surcharge of \$50 per acre-foot on any long-term transfer of water from agricultural to municipal or industrial use.

Reliability incentives shall be awarded as follows:

- A landowner who enrolls acreage for 20 years shall be delivered up to 20 percent more water than is delivered to non-enrolled acreage when cutbacks (delivery of less than full entitlements) are in force.
- A landowner who enrolls acreage for 30 years shall be delivered up to 30 percent more water than is delivered to non-enrolled acreage when cutbacks are in force.
- A landowner who enrolls acreage for 40 years shall be delivered up to 35 percent more water than is delivered to non-enrolled acreage when cutbacks are in force.

The direct contractor (i.e., the water district with a legal contract to buy Federal water) is ordered to ensure that this extra entitlement is received by all eligible landowners in all applicable years.

Extra water delivered under the reliability incentive is to be made available only as new water storage facilities or conservation strategies augment the CVP supply. No water from the pre-existing CVP supply (prior to the year in which this proposal is adopted) can be used for this purpose. As such, eligible landowners who elect to participate in this program are at risk that the supply of available "new" water to satisfy enrolled acreage may not be sufficient to serve all the eligible acreage in the Partnership when any water shortage occurs. Should this be the case, acreage raising permanent crops shall be first in line for augmented delivery, under the same rules that apply to regular CVP water deliveries during periods of shortage. Other allocation judgments may be exercised at the discretion of the Mid-Pacific regional headquarters of the Bureau of Reclamation.

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